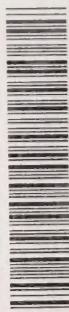




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TEEMING WATERS

FOREWORD

Canada is singularly blessed in the variety and abundance of her fishing resources in marine and inland waters, factors which are further enhanced by their ready accessibility to our nation's fishing force. On the Pacific our mainland coastline extends 1,600 miles to which is added 4,000 miles of island seaboard. On the Atlantic the respective stretches of coastline are 6,100 miles and 8,700 miles. Inland there are 260,000 square miles of freshwater areas, the largest of any country in the world. The riches of our coastal waters are supplemented by those of the offshore banks, especially on the Atlantic, which extend out over the continental shelf.

Of the great number of fish and shellfish species found in tidal and inland waters more than 150 different kinds are significant in our commercial fisheries. This wide range of species, coupled with progressive and diversified processing methods, provides for a great variety of fishery products which travel multi-laned routes to many parts of the world.

Aside from their basic importance as a self-perpetuating food resource, the fisheries are vitally significant in other respects. Historically, economically and socially they are intertwined with Canada's development. They have brought international prominence in the leading part that Canada takes, as signatory to seven international conventions, in protecting and conserving fish stocks in which we share an interest with other countries.

These and other facets of our fisheries are outlined in this booklet which will provide the reader not only with detailed information on a valuable resource but also, I trust, with interesting reading.

A handwritten signature in dark ink, appearing to read "S. R. Clark". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Deputy Minister,
Department of Fisheries of Canada.

Teeming Waters

by MARK RONAYNE

Photographs by the Department of Fisheries of Canada except where credited.

WHEN IN 1957 huge trawlers lowered their nets into the Atlantic off Canada's east coast to bring up copious catches of redfish from hitherto unfished waters, history had once again come full cycle in repeating itself. For, as early as 1497, the year of Canada's discovery, it was being said of the waters of this new world:

"The sea is full of fish which are taken not only with the net but also with a basket in which a stone is put so that the basket may plunge into the water . . ."

Today, after four and a half centuries, notable changes have come over the fisheries off our east coast, in the species sought, the ships that pursue them and in the catching methods. But one factor remains unchanged — from the earliest days of discovery to the present, the wealth of these waters continues to be a prize coveted by fishermen of many European as well as the two North American nations, and food from these teeming waters continues to follow multilaned routes to many parts of the globe.

Richly endowed as she is on the east coast, Canada is no less fortunate in the resource of her Pacific waters. Here, too, are found the requisites of a great natural heritage replete with variety, quality and abundance. Based on the all-important salmon, the west coast fisheries also have access to important stocks of halibut, herring and various groundfish and shellfish species which support a rich and multi-faceted industry.

Rounding out the picture of Canada's fisheries are those of the immense stretches of inland lakes and rivers which comprise over one-half the freshwater area of the earth. The inland fisheries are widely dispersed over the central and prairie provinces and today are reaching ever farther into the northland.

From these vast resources of ocean, river and lake, offering some 150 species of fish and shellfish of commercial importance, Canada's 80,000 fishermen annually harvest two billion pounds for which they receive upwards of \$100 million. From the catch, the process-

ing industry, employing some fifteen thousand men and women, produces a wide variety of food items in fresh, frozen, salted, pickled, canned, smoked and other forms, together with an imposing list of by-products comprising chiefly animal feeds and industrial oils, all having a marketed value of some \$200 million. The United States, with which Canada shares fisheries on both her coasts and in some of the Great Lakes, is Canada's principal customer, but many other countries, principally in the Caribbean, South American and European theatres together with the Far East and Commonwealth areas, also represent important markets.

Atlantic Fisheries — Inshore

The fisheries along Canada's Atlantic seaboard are shared by five provinces: Newfoundland, Nova Scotia, New Brunswick, Prince Edward Island and Quebec. From Grand Manan, New Brunswick, in the south to Cape Chidley at the northern tip of Labrador, including the deep indentations of hundreds of bays, coves and inlets, the protruding headlands and offshore islands, the entire shoreline stretches some 12,000 miles. Some sections of this long, crooked seaboard are thickly dotted with fishing hamlets and major ports. Other areas, notably in Labrador, find settlements thinly strewn out, and often these are inhabited by only a handful of families. But throughout the entire coastline, whether densely or sparsely populated, the fisheries play an important part in the people's way of life, providing them with a major or partial share of their sustenance. And from the little and big ports a myriad fleet of dories, motorboats, long-liners, trap-skiffs and draggers put out to reap the wealth of the coastal waters.

Dominant among the species taken by the inshore Newfoundland fishermen is the cod which swarm into coastal waters during the summer months to feed on vast schools of silvery little capelin which come in to the beaches to spawn. A large proportion of the



Drying salt cod on flakes in Nova Scotia.

Nova Scotia Film Bureau

cod catch is taken in set trapnets; additional quantities are caught on baited trawl and hand lines. At one time the entire Newfoundland cod catch was processed in the salted and dried form, but since the 1940's a substantial portion has been utilized by the rapidly expanding quick-freezing industry.

Other species taken in Newfoundland's coastal waters include: Atlantic salmon, herring, mackerel, turbot and squid. Only two shellfish species are harvested, lobsters along most of the coastline and scallops in a relatively limited area on the province's west coast.

A colourful and hazardous inshore operation is the hunting of pothead (pilot) whales by fishermen of a few east coast villages. The whales, travelling in herds, are surrounded by the fishermen in small boats and driven into the shallows of a cove where they are slaughtered by hand harpoons. The meat of the potheads is used in producing feed for furbearing animals while the fat is rendered into oil.

Danish seining, a long-proven method among European fishermen but relatively new to Canada, was pioneered in Newfoundland in the early 1950's and met with moderate success in a few areas, notably in the south coast sector of Fortune Bay. This



Here, off the coast of Ingonish, N.S., fishermen haul aboard a catch of mackerel.



The sardine industry of southern New Brunswick relies heavily on weirs such as the above for supplies of the immature herring. Photo shows how the weir is seined, the fish being brought together in a mass and taken into the boats.

fishery for small flatfish is the only exclusive operation for fish of this category in the island.

As in Newfoundland, the majority of fishermen in the Maritime provinces — Nova Scotia, New Brunswick, Prince Edward Island — and Quebec are employed in the in-shore fishery. Throughout most of this huge area, which takes in the Gulf of St. Lawrence, the Bay of Fundy and numerous large bays, there is seasonally a great variety and abundance of fish and shellfish. The groundfish species, those living on or near the bottom, are well represented with cod, haddock, pollock, hake and different kinds of flatfish, these being supplemented by so-called “estuarial” species such as salmon, alewives, smelt and shad.

Fishermen of the Maritimes combine a mixture of skills and fishing devices in their day-to-day operations, using long-lines, small otter trawls, fixed gill-nets, trap nets and hand lines. The Danish seine method of fishing has taken hold in some areas, following

experimental fishing with this gear by the federal Department of Fisheries, and is conducted mainly in Gulf of St. Lawrence waters between Cape Breton and the Magdalen Islands.

A delight of the gourmet as well as the everyday meal planner are the shellfish caught throughout most of the Maritimes region. By far the most important of these is the lobster, taken in all four provinces, which has the distinction of being the most important income producer of all species in Maritimes waters. In fact, the value of the lobster catch in the Atlantic region as a whole equals that of all the cod taken by east coast Canadian fishermen in both inshore and deepsea waters.

Lobsters are caught in traps made of wood lathes and twine set in close-to-shore depths of up to 20 fathoms. Because of fishing intensity and their high vulnerability to overfishing, lobsters are rigidly protected as to fishing seasons which vary throughout the lobstering district. The federal Fisheries Department also carries out an intensive cam-



A fisherman removes his lobster catch from a trap.
Nova Scotia Film Bureau

The old and new methods of harvesting clams.



Using rake-ended, scissors-like tongs, these Ellerslie, P.E.I., fishermen bring up oysters from a Malpeque oyster bed.

paign against the taking of young lobsters ("shorts") and "berried" lobsters, i.e., those carrying eggs.

Oysters, a valuable crop, are fished both from public beds where they grow "wild", and from leased beds which are under cultivation. Prince Edward Island is one of the main producers of cultivated oysters, and the name Malpeque stands for an epicurean treat. In 1954-55 oyster stocks of New Brunswick and adjoining Nova Scotian grounds were seriously thinned out by an epidemic disease (harmless to humans), which caused severe hardship to fishermen in those areas. After close scientific study of the problem the federal Department of Fisheries initiated a program to rehabilitate the depleted beds by re-seeding with immune oysters from Prince Edward Island, and predictions are that the grounds will be restored to their previous productivity in half the time it would take under natural recovery.

Clams are another important shellfish in many parts of the Maritimes and are usually dug or raked. Stocks in deeper waters inaccessible to hand-diggers can now be exploited too as the result of the development of a mechanical clam digger by the Fisheries Research Board of Canada.

Among the most abundant of pelagic



Spanish pair trawlers at dockside in the harbour of St. John's, Nfld. These and other ships of the international fleet fishing the Grand Banks often seek shelter or take on supplies at St. John's.

species in the Maritimes are herring which are caught in weirs, gill-nets and purse seines. Much of the catch is canned or cured for food purposes and additional large quantities are used in the reduction industry and for bait. The important sardine canning industry of southern New Brunswick relies for supplies on immature herring taken principally in the Bay of Fundy in weirs. Herring also have a special significance for the sandy, windswept Magdalen Islands which stand out in the Gulf of St. Lawrence. For the fisherfolk there, this species constitutes the bulk of their landings.

Several other species of varying importance are caught by commercial fishermen of the Maritimes area. These include mackerel, which are taken almost everywhere, and others of regional rather than general importance.

Offshore — The Grand Banks

Since the early 1500's European fishermen have roamed the northwest Atlantic in search of cod and seldom, if ever, have their campaigns gone unrewarded. In fact, so phenomenally productive are the 200,000 square miles of deep-sea grounds that today's fishing pressure is more intense than at any time in the past.

"It's like Main Street on Christmas Eve", is the way one veteran bluewater Canadian fisherman is wont to describe the banks during the height of the fishing season. By night the scene is especially impressive as the amber islands of light move slowly across the vast ocean void, ever fishing. Here assemble the last great ocean-going schooner fleet, the dory fishers of Portugal who come out under taut sails as they have for upwards of four centuries. Today their fleet also includes



stocks discovered a few years ago and now exploited by at least five nations.

Although far outnumbered by the international fleet Canadian fishing vessels are among the most active on the banks, benefiting from the close proximity of this great food reservoir. This aspect of our fisheries has witnessed a striking change in the past quarter-century as the picturesque banking schooners, with few exceptions, sailed into obsolescence to be replaced by a fleet of fast, efficient trawlers.

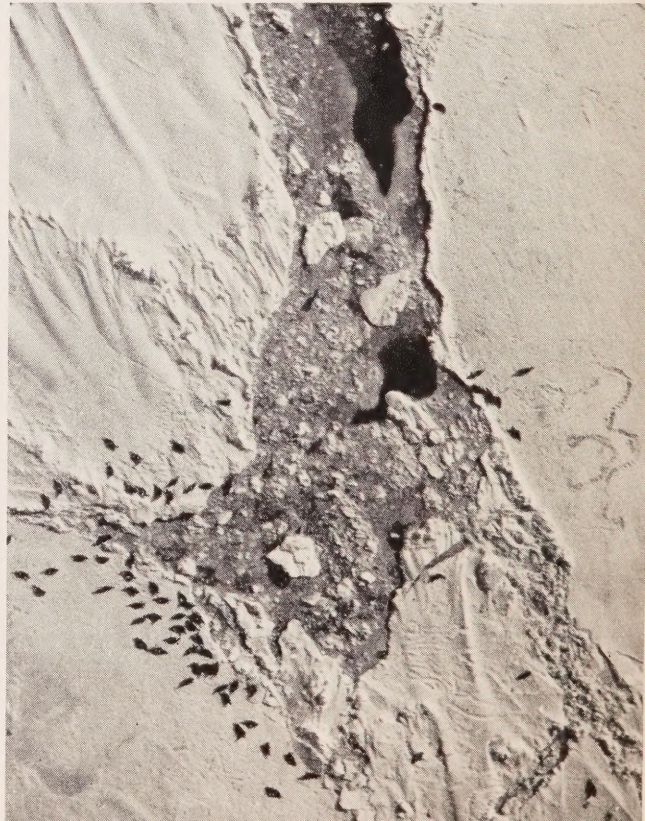
Another important offshore fishery is for scallops, mainly on Georges Bank off the Gulf of Maine. These grounds are fished extensively by Canadian and United States fishermen and produce by far the bulk of this shellfish landed in the Maritimes. Within recent years new scallop grounds have been found by Canadian fisheries scientists on the southern part of St. Pierre Bank which are said to be sufficiently extensive to support commercial operations.

Swordfishing, in which well over 100 boats engage, may also be classed as a deepsea operation although the fish are taken on the surface. The "broadbills", which average 200

many otter trawlers dragging huge, cone-shaped nets across the bottom, and mingling with similar ships from France, Italy and Spain. The Spanish also ply the banks in another type of craft, small pair-trawlers which tow one otter trawl between them, and which are dwarfed by the giant factory ships wearing the colours of the United Kingdom and the U.S.S.R.

In the past few years Icelandic and West German trawlers have also frequented these grounds, as have long-liners from Norway and the Faroe Islands. For the crews of this huge international fleet such names as the Grand Bank, St. Pierre Bank, Banquereau, Green, Middle Sambro, Sable Island, Browns and LaHave and other "banks" are as familiar as those of their streets at home.

Fished for cod since their earliest days of discovery, these rewarding underwater plateaux have in recent years been contributing other food species in massive volume to the world's tables including haddock, pollock, halibut, hake, redfish and a mixture of flatfish. Despite the intensive scouring over the centuries, the banks continue to offer new fishing lodes such as the untapped redfish





Otter trawling on the Grand Banks off Canada's east coast. This vessel is well fished with haddock.

The cod trap is a favourite catching gear among Newfoundland fishermen. Here the trap has been "dried up" and the fish are being taken aboard the trap skiff.





Salmon being brailed aboard a purse seiner off the B.C. coast. This type of vessel is the largest in Canada's Pacific operations for the valuable salmon.

pounds but individually often weigh up to 600 pounds, are captured by hand harpoons. Such a harpoon, equipped with an electrically charged head, has been proven successful in killing swordfish quickly and efficiently.

Daring and danger are epitomized in the sealfishery out of Newfoundland and Nova Scotia ports in the waning days of winter and early spring. Two species of northern seals, the harps and hoods, are hunted in sturdy, iron-prowed motor vessels along the Arctic icefloes on which the mammals whelp. Prime quarry of the hunters are the "whitecoats", the young of the species, which command premium prices because of their hair-fast pelts and higher grade of oil extracted from the blubber.

Sealhunting is a gruelling but exciting pursuit, fraught with peril from drifting icebergs, "growlers" and rafting ice among which the vessels thread precarious paths seeking a payload. In the early days more than 400 sailing

ships were outfitted for the sealfishery each year out of Newfoundland ports but today the fleet has dwindled to a fraction of that number, sailing out of Halifax, N.S., and St. John's, Nfld. The decline of the sealhunt is attributed to a falling off in the market price for marine oils.

The two main sealing grounds are the "Northern Front", off Newfoundland's north-east coast, and the Gulf of St. Lawrence. In addition to the shipboard operation, landsmen also take varying numbers when drifting ice brings the seals within striking distance from shore.

Pacific Fisheries

When the first white pioneers arrived on the Pacific Coast they found that fish, in this case salmon, had from some unknown time been a prime factor in the livelihood of the native Indian tribes, with many villages located close to choice river fishing sites. To this day the salmon species — sockeye, coho,

pink, chum and spring — dominate the British Columbia fisheries in value, but the present highly-mechanized industry exploits many other fish and shellfish as well.

Notable after salmon are the halibut stocks, the largest on this continent, and the herring which habitually outrank in volume the combined catch of all other species on our Pacific Coast. Most of the West Coast fishing activity is carried on in waters close to shore or sheltered by the chain of large islands which act as a natural breakwater against the ocean's turbulence along much of the British Columbia coast. The principal offshore fishery is for halibut on the prolific grounds in the Gulf of Alaska and the Bering Sea.

From the earliest times the sockeye has been the most highly prized of the salmon species; however, as processing and preserving techniques have improved, the fishing industry has made good use of the other species as well. By far the greatest part of the overall catch is canned in which form it is marketed throughout Canada and in many countries abroad, with the United States ranking as our best customer. Varying but important

quantities are also processed in the fresh form and as frozen, smoked and dry-salted.

The salmon are taken in coastal and estuarial waters when they make their annual pilgrimage from the ocean to spawn in British Columbia's rivers and streams. This fishery is a highly concentrated one, with something new being added almost every season, in vessels and catching equipment, to make operations more efficient. Salmon traps, once numerous, have decreased to the point where there are now only five in operation, at the southern tip of Vancouver Island. In their place the industry has developed fast-moving fleets of gill-netters, trollers and purse seiners which compete intensively for the great salmon runs. One of the most important developments in catching gear in recent years is the power block for purse seiners which, by eliminating most of the arduous hauling of the huge net by hand, has given this gear added speed and efficiency.

Largest boats of the British Columbia salmon fleet are the purse seiners which get their name from the huge net in which the fish are taken. This net may be up to 220 fathoms in

A British Columbia gill-netter hauling his net for salmon.





(Left) A Pacific Coast purse seiner takes a large haul of herring. The net is hauled in by a recently developed power block.

(Right) A small salmon troller cruises slowly over sparkling Pacific waters.

length and is buoyed by floats at the surface. After the net has been set out to encircle the fish, a purse line running through the bottom meshes is drawn taut and the net is gradually taken aboard the ship until the fish are

brought to the surface in a mass. They are then brailled into the boat with a huge, winch-operated dipnet. Gill-netters, the smallest units of the fleet, are also the most numerous. Their net of fine, strong twine is suspended

Catching salmon for research in the Pacific, sponsored by the International Pacific Salmon Commission. The salmon are tagged and released to continue their journey to the spawning beds.





between corks at the head and leads at the bottom, with one end tied to a buoy and the other attached to the boat. Fish become trapped when they swim into the mesh and are caught by the gills. The third type of salmon catcher, the troller, is somewhat larger than the gill-netter, and is immediately identified by its tall poles. These extend over the sides when the boat is fishing, and the fish are caught on metal lures ("spoons") attached to stainless steel lines running out from the poles.

At one time the fisherman carried his catch to market or to the processing plant and some still do when this is convenient. However, to meet the exigencies of a rapidly developing industry there has evolved a tightly-organized sea-borne transportation system employing collecting boats and packers which speed a large part of the catch to the processing plants.

Pacific salmon are justly regarded as a quality product for which the demand, both on the domestic market and abroad, consistently remains high. For this reason they are intensively exploited, and, to avoid their being over-fished, the various populations are protected by regulations covering catching gear, and seasons designed to provide escape-ment of sufficient spawning stock to ensure adequate seeding.

In their freshwater habitat the salmon may

face hazards in the form of natural and man-made obstacles, predatory enemies, pollution of streams by industrial wastes, or floods and droughts caused by indiscriminate removal of forest cover from the stream banks. Here further protection is provided by the federal Department of Fisheries which by stream



British Columbia shrimp fishery. The catch is hand-brailed from cod end.



General view of Seton Creek dam with fishway on the right bank.



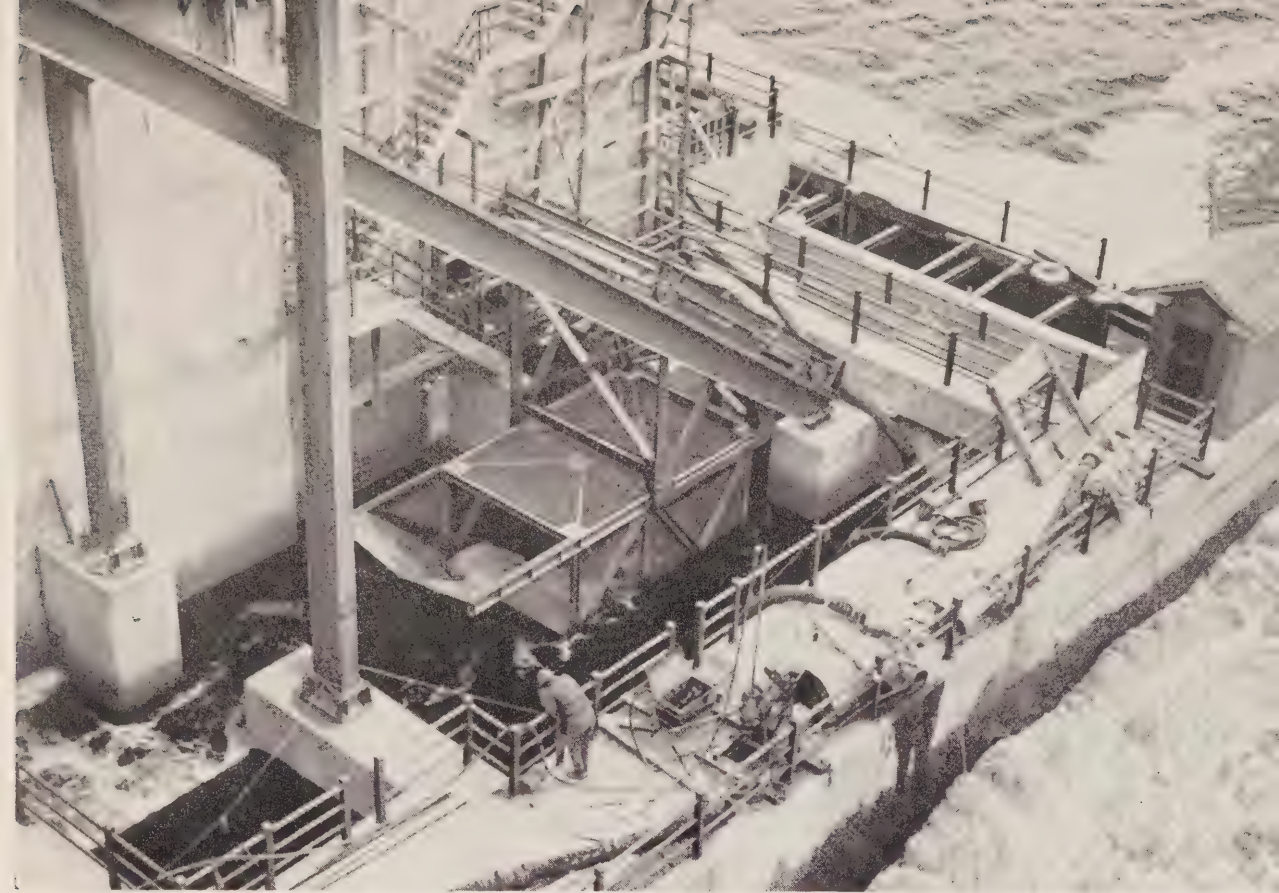
clearance programs, the building of fishways and by other remedial measures, seeks to preserve and enhance the salmon's spawning and early-life environment. So thorough has been this work that runs of salmon threatened with extinction have been successfully restored, and man-made spawning beds are bringing new stocks into existence.

Halibut and Other Species

Similar rigid protection is provided for the halibut and herring stocks, both of which are avidly pursued by the west coast industry. A case in point was the serious decline in halibut stocks which led to an agreement, in 1923, between Canada and the United States aimed at reviving them. Under a system of quotas the halibut grounds have become even more highly productive than at any previous time. Halibut are caught by the long-line method and are marketed as fresh or frozen.

Pacific herring, caught in purse seines, are also hedged by a protective quota system established and enforced by the federal Fish-

The Hells Gate fish ladders on the Fraser River aids the return of spawning salmon runs to this river system.



*Beechwood Dam, St. John River, New Brunswick.
Skip-hoist-fish-lift in trapping position.*

eries Department. These stocks, too, continue to flourish and support the province's important oil and fish meal industry.

Adding variety to the Pacific catch are such groundfish as gray cod, lingcod, sablefish, soles and mixed flounders. Among the shellfish species crabs and oysters compete for supremacy while clams, shrimps and prawns also contribute a share to overall landings.

Two other species of fish which have made fleeting contributions to the British Columbia fisheries are the pilchard and tuna. During the late '30's the pilchard stocks, in their migration northward along the Pacific Coast, were caught in large enough quantities to produce up to 15,000 tons of meal and four million gallons of oil. However, since 1940 this fishery has fallen off and is today but a memory.

Tuna have proven to be similarly mercurial in their visitations to the West Coast. In the late 1940's as much as two million pounds were landed annually, and in subsequent years hopes have sometimes been

Fishway on the big falls on Newfoundland's Terra Nova River.





A swirl of smoke clouds the harpoon fired at a humpback whale off the British Columbia coast. Air is pumped into the captured whale to keep it afloat until the "catcher" boat arrives to tow the whale to the factory.

raised of a return of this good fishing, but invariably the tuna have failed to appear.

Whaling was at one time a major activity on both of Canada's coasts, but because of declining markets for products of this fishery it now plays but a minor role. The only fishery in recent years for large whales, apart from a few taken in Newfoundland, was conducted in British Columbia but this year (1960) it was announced that, even there, the lone existing station would not be operating.

Inland Fisheries

For most Canadians the multitude of lakes, rivers and streams from coast to coast are mainly a holiday retreat. But there are thousands of others for whom the nation's 260,000 square miles of freshwater area are as much a commercial fishing territory as are the oceans for the saltwater fisherman.

Over 600 lakes are commercially fished but the major share of landings, understandably, comes from the larger and more accessible areas. Among these the principal producers are the Great Lakes, notably Lakes Erie and Huron, Great Slave Lake in the Northwest

Territories, Lakes Winnipeg, Winnipegosis, Manitoba and The Pas in Manitoba, Athabaska Lake in Saskatchewan and Lesser Slave Lake in Alberta. New roads knifing into wilderness areas are gradually bringing previously inaccessible sources into range.

Ontario ranks as the largest fresh fish producer followed in order by Manitoba, Saskatchewan, Alberta and the Northwest Territories. Principal species according to volume are whitefish, perch, pickerel, lake trout, herring, pike, suckers, sauger, and smelts.

Practically all the summer catch is made with gill-nets and trap nets which the fishermen work from a heterogeneous fleet tuned to local requirements. These range from canoes and simple rowboats to the unique, closed-in fishing tugs of the Great Lakes. For fishing through the thick, winter ice the fishermen use an ingenious device called the "jigger" to set their nets under the ice.

Inland fishing is replete with its hazards and hardships ranging from the sudden, violent storms of the Great Lakes to the numbing cold of sub-zero temperatures in the northern areas. Writing of the lot of the win-

ter fisherman, a federal Fisheries official pictures them graphically:

"Often far out on the ice, out of sight of land, in the milky twilight of the short winter day, with the temperature many degrees below zero and in the face of cutting winds, the fisherman hauls his long string of nets with wet hands, and laboriously takes the tangled fish from the meshes. Since fresh fish, not frozen, bring the best prices, if he can he covers his catch with snow, believe it or not, to prevent freezing, as soon as it lands on the ice."

From the icy wastes much of the winter catch starts on its journey to market in a "bombardier", a tank-like tracked vehicle with a heated body, or in aircraft. In cases where the fish has been frozen many fishermen still use dog teams and others use tractors and trucks. Over a maze of water, land and air routes about 80 per cent of the entire catch from the far-flung inland fisheries goes to markets in the United States. The remainder, except for a small specialty portion, is absorbed by the domestic market.

As with the marine species, the freshwater

catch is marketed in a variety of forms: dressed and whole, fresh, frozen and filleted. The highly regarded "Winnipeg Goldeye", which now come mostly from Ontario and Alberta are smoked, and others are frozen in blocks to be used eventually for certain specialty fish products appearing in glass jars.

Many of the inland areas are vulnerable to over-fishing and suitable safeguards have been devised to ensure productivity. However, some freshwater territories have peculiar problems for which new remedies must be prescribed. Such a complication was presented in the invasion of the Great Lakes by predacious sea lampreys following the building of locks and canals. In particular, they are regarded as being largely responsible for the diminution of whitefish and lake trout stocks in the lakes.

To meet this challenge, Canada and the United States have joined, in the Great Lakes Fishery Commission, in an all-out program to find ways of eradicating the sea lampreys. So far considerable success has been obtained by using electrically charged barriers to block the predators from their spawning streams,

Fishermen lifting pound net on Lake Erie, Ontario. A large variety of fish is taken from this and other lakes in Canada's vast freshwater areas.





A halibut fisherman takes in a big fish on his long-line.

spawn. This limits their availability to a relatively short period. To extend the fishing season for smelt, the federal Department of Fisheries is experimenting with gear which will take smelt in the lake's open waters and successful work has already been conducted with the mid-water trawl.

The Northern Resource

Any discussion of Canada's fisheries resource would be incomplete without a reference to the potential of the vast northern areas of ocean and inland waters. Historically, these resources have been exploited chiefly by the native populations for food purposes. A limited commercial fishery has for many years been based on the white whale herds, particularly in the Churchill area of Hudson Bay. These mammals are hunted with harpoons and guns, chiefly from small boats, and are protected by a catch quota. A relatively minor fishery for Arctic char has also been launched as one facet of the general development of the northland.

Without doubt the most important factor in the north's fisheries future is the scientific research program that is now being carried out. These investigations, which have been going on for years, have been intensified as a result of the increased attention focussed on the overall resources of the northern areas. There is a general feeling that this region has a fisheries potential as yet unexploited; success or otherwise in this regard will be revealed by the probing light of scientific research.

Inasmuch as they deal in a resource subject to influences over which little or no control can be exercised — one that is victim to vagaries of weather, current, temperature and other implacable laws of nature — Canada's fishermen bring a rare faith to their calling. For them a fishing season begins many months before a fish may be caught, with boats to be put in order, gear to be overhauled or replaced, shore installations to be built or repaired and a host of other details to be completed if their work is to succeed.

In the attainment of this goal the industry is aided immeasurably by the activities of the federal Department of Fisheries which, under authority of the Parliament of Canada,

and more recently a chemical has been developed which, when introduced into breeding streams, destroys the young lamprey but is harmless to desirable sport and commercial fish. The lamprey control program is to be followed by a program of re-stocking with trout to boost recovery of these stocks.

Another marine species which has thrived in the Great Lakes is the smelt which were transplanted from their ocean habitat to some lakes adjoining Lake Michigan as forage for the local species. In some way — whether through a broken dam or overflow — the smelt found their way into Lake Michigan, continued on through Lake Huron, and eventually arrived in Lake Erie where they flourished. In ten years the smelt populations have attained such proportions that they are now an important factor in the region's fishing industry. The bulk of the catch is taken in shallow waters when the fish congregate to

is the official guardian of the resources of tidal and inland waters. Parliament has sole legislative jurisdiction over all the country's fisheries, but down through the years a number of provinces have been delegated administrative responsibility for their fisheries in lake and stream. An exception to this general rule is the Province of Quebec which also administers most aspects of its sea fisheries.

A major share of responsibility for the protection and nurturing of the fisheries resource is undertaken by the Department's Conservation and Development Service whose teams of highly trained biologists, engineers and protection officers carry out a multitude of tasks in the course of their everyday work. Theirs is also the job of applying the findings of the scientists of the Fisheries Research Board of Canada, the Department's scientific arm, whose achievements have won worldwide acclaim.

A high order of diplomatic and administrative ability is called for in dealing with problems associated with the international fisheries adjacent to our coasts. In the solution of such matters, Canada takes a leading role as signatory to seven international conventions covering fish stocks in which this country has an interest.

It is significant that the first international treaty of any kind which Canada signed in her own right was the halibut treaty with the United States in 1923. Two additional treaties of a bi-lateral nature with the United States cover the sockeye and pink salmon resource of the Fraser River-Juan de Fuca Strait on the Pacific and the jointly-shared fisheries of the Great Lakes.

Treaties of a broader nature include the International Commission for the Northwest Atlantic Fisheries in which twelve nations now participate; the International North Pacific Fisheries Commission in which Canada has as partners the United States and Japan; the International North Pacific Fur Seal Commission composed of Canada, Japan, U.S.S.R. and the U.S.; and the International Whaling Commission which is worldwide in membership.

Through these international groups, through various committees on the home front and by the concentrated efforts of its staff across the country, the federal Department of Fisheries seeks to preserve and expand Canada's rich heritage of ocean and inland waters for the benefit of today's population and for generations of Canadians to come.

Codfishing fleet, Gaspé Peninsula.

The boats find haven in this snug, picturesque harbour when storms brew.





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